

**[0074]** What is claimed is:

## **CLAIMS**

1. A method of forwarding frames on a communication network, comprising the steps of:  
receiving a frame at a first switch;  
extracting frame contained destination information from the received frame;  
ascertaining from said frame contained destination information an output port on the switch; and  
transmitting said frame from the output port.
2. The method of claim 1, wherein the step of receiving a frame at a first switch comprises reading a portion of a header of the frame and causing the frame to be passed directly to the output port.
3. The method of claim 1, wherein the frame contained destination information comprises a portion of a Media Access Control (MAC) address.
4. The method of claim 3, wherein the MAC address is a local destination MAC address.
5. The method of claim 3, wherein extracting comprises reading a field of the MAC address and wherein ascertaining comprises using information in the field to identify the output port.
6. The method of claim 5, wherein ascertaining comprises reading at least a second field of the MAC address.
7. The method of claim 1, wherein the frame contained destination information comprises a local Media Access Control (MAC) address having at least two fields, a first of said fields containing information for the first switch and a second of said fields containing information for a second switch connected to an interface of the first switch.
8. The method of claim 7, wherein extracting comprises reading the first and second fields.

9. The method of claim 8, wherein ascertaining comprises comparing, by the first switch, information in the second field with expected information, and selecting as the output port an the output port on the first switch that is connected to said second switch if the information in the second field does not match the expected information.

10. A protocol data unit, comprising:  
a first field containing first destination information for use by a first switch to identify a first output port on the first switch; and  
a payload portion.

11. The protocol data unit of claim 10, further comprising a second field containing second destination information for use by a second switch to identify a second output port on the second switch.

12. The protocol data unit of claim 10, wherein the protocol data unit is a frame, and wherein the first field is contained in a Media Access Control (MAC) address associated with said frame.

13. The protocol data unit of claim 12, wherein the MAC address is a local MAC address, and wherein the local MAC address is a destination MAC address of the frame.

14. The protocol data unit of claim 13, further comprising a third field containing third destination information for use by a network device to enable the network device to select particular frames from a stream of frames.

15. A method of assigning a Media Access Control (MAC) address to an interface on a network, comprising:

setting a local bit in the MAC address to indicate to network elements on the network that the MAC address is locally assigned; and

assigning a first value to a first field of the MAC address, said first value containing first output interface information usable by a first switch to identify a first output interface for transmission of frames containing said MAC address.

16. The method of claim 15, further comprising collecting the first output interface information from the first switch.

17. The method of claim 15, further comprising assigning a second value to a second field of the MAC address, said second value containing second output interface information usable by a second switch to identify a second output interface for transmission of frames containing said MAC address.

18. The method of claim 17, further comprising collecting the second output interface information from the second switch.

19. The method of claim 15, further comprising transmitting the MAC address to a network device containing said interface to which the MAC address has been assigned.

20. The method of claim 19, further comprising setting the network device in promiscuous mode to cause the network device to receive said MAC address.

21. The method of claim 15, further comprising a step of assigning a second field of the MAC address according to a prefix of the first switch.

22. The method of claim 21, wherein the prefix is a portion of all local MAC addresses that are reachable through the first switch.

23. A method of performing Local Media Access Control (MAC) Address (LMA) resolution on a network, the method comprising the steps of:

receiving an LMA address resolution request; and

forwarding the LMA address resolution request to an LMA address resolution server to identify an LMA associated with the LMA address resolution request.